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The Cleft Palate Problem

A radio discussion over WGN and the Mutual Broadcasting System

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The Cleft Palate Problem

MR. McBURNEY: Our speakers today are Dr. Frederick Merrifield, Professor of Oral Surgery at Northwestern University, and Director of Plastic Surgery in the Children's Memorial Hospital; Dr. John R. Thompson, Professor of Orthodontics and Director of the Cleft Palate Institute at Northwestern University; Mr. J. N. Macomb, Jr., of the Public Relations Department of Inland Steel Company; and Dr. Harold Westlake, my colleague, I might add, Professor of Speech Correction and Director of the Speech and Hearing Clinic in the School of Speech at Northwestern University.

Gentlemen, I have before me a brochure of the Northwestern University Cleft Palate Institute, in which I know three of you men are interested. This brochure pictures a baby with a cleft lip. It is a picture of an infant with a terrible facial deformity, if I may say so. The picture bears the caption, "This child will hide his face all through life unless—" Unless, I take it, he is given adequate care and treatment.

Now, Dr. Merrifield, are these facial deformities typical in cleft palate cases?

Facial Deformities

DR. MERRIFIELD: If the lip is involved in addition to the palate, the facial deformities are typical. One case might be very much more severe than another, but if the lip is intact, there is absolutely no facial deformity, while the palate may be wide open.

DR. THOMPSON: Dr. Merrifield, by "palate," you mean the roof of the mouth, do you not?

DR. MERRIFIELD: Yes, sir. It is the partition that divides the nose from the mouth.

MR. McBURNEY: I was about to ask how you would describe a cleft palate condition. What is a cleft palate?

DR. MERRIFIELD: Well, the palate separates the nose from the mouth, so they can move separately. As you know, we breathe through our nose, and eat with our mouth. If there is not such a divider as the palate or roof of the mouth, the food we eat for nourishment, especially liquids, would pass out through the nose. Also, the air we breathe through the nose would pass out of the mouth rather than into the lungs, where we need it.

The soft palate, which is the distal or the rear portion of the palate, hangs down like a fingerlike bulge, called the uvula, with the other muscles that form the soft palate. It is commonly believed this is an important part of the soft palate which tends to close off more effectively the nose from the mouth in swallowing and talking, and not only does the soft palate become involved there, but also the muscles of the throat which are drawn together in the act of swallowing or speaking. As an example, it would be like taking an old fashioned purse with a drawstring and closing that drawstring.

MR. MACOMB: Well, then the hard palate, Doctor, is the entire roof of the mouth, is that correct?

DR. MERRIFIELD: No, the hard palate is the front portion of the roof of the mouth, which is of bone. The rear portion is of soft tissue, composed of muscles and mucosa.

Associated Problems

MR. WESTLAKE: We might describe this, also, not only in terms of what the structure is, but in terms of what happens. For instance, in eating, it is important for us to keep the food in the mouth. If the food gets up in the nose, it causes all types of difficulties, and without having a good roof of the mouth, the food does get up where it doesn't belong.

Now, one of the very damaging effects of that, besides not being able to eat well—and you have to eat—is that this food can get up near the

tubes, what we call the Eustachian tubes. They are tubes that drain the middle, inner part of the ear. These tubes connect the middle ear with the throat, and having these tubes in good condition is very important to proper hearing. The food may get up around these tubes, and we find that quite a number of these children—in addition to having difficulty in eating—have serious hearing problems that result from the fact that this roof of the mouth doesn't keep the food out of the places in which it should not go.

MR. McBURNEY: How is their speech affected, Westlake?

MR. WESTLAKE: Well, just as we do most of our eating through the mouth, and most of our breathing through the nose, we do most of our talking through the mouth. Now, we have to get certain sounds out of the mouth, and without the roof of the mouth, the nasal resonance comes up; the voice doesn't sound very good.

For most of our consonants we have to push air out of the mouth. For a "P," for instance, we have to push a puff of air. Now, if you have no roof of the mouth, instead of getting a puff of air out of the mouth, you get a snort out of the nose. For this reason, these children or adults probably not only sound rather unpleasant because of nasality, but you can't understand them.

Prenatal Condition

MR. McBURNEY: I take it, Dr. Thompson, babies are born with this condition. Is that right?

DR. THOMPSON: That is right. It is a condition that forms after conception and very early in the embryonic period of the infant.

MR. McBURNEY: Are they to be regarded as abnormal children?

DR. THOMPSON: We don't like to apply the term, "abnormal," to these youngsters. Rather, they are unfortunate individuals in whom Nature, in its complex process of development of the face and jaws, has made a mistake. Certain of the parts of the forming lip or jaw may fail to form. It is not an unusual condition, in that it happens on the average of once in every 700 births.

MR. MACOMB: I was going to ask you, Dr. Thompson: Is this true, particularly, among a certain race of a certain part of the earth's surface?

DR. THOMPSON: No. It is over the world; I think we could make that statement.

MR. MACOMB: It is generally true throughout the world?

DR. THOMPSON: That's right.

MR. WESTLAKE: It seems to hit rich and poor people in all parts of the world with the same incidence. It is something that is not part of an individual affliction; it is something that is in the human race.

DR. MERRIFIELD: We know very little about the cause or reason for these developments, and it is true that rich or poor, they can be afflicted equally. Not only do cleft palates and cleft lips occur in the human race, but animals are afflicted. Horses, dogs and many other animals are sometimes born with these defects.

Attitude of Parents

MR. McBURNEY: How do parents react to babies with these deformities? Are they likely to be rejected by the parents?

DR. THOMPSON: I think the reaction on the part of the parents is related directly to the type of deformity. If the deformity is such that it involves both sides of the upper lip and also the front part of the upper jaw, then the facial deformity is quite severe. Therefore, this will have a severe emotional impact on the parents. On the other hand, if we go to the other extreme, if the cleft involves only the soft palate at the back of the mouth, or a part of the hard palate or the roof of the mouth, then the problems that will be associated with this type of deformity develop gradually.

MR. McBURNEY: In that case you would *hear* the deformity rather than *see it.*

DR. THOMPSON: In time. But the parents would have time to adjust themselves to the condition.

MR. McBURNEY: How do youngsters

afflicted this way respond to their associates? How do they get along in the world?

MR. WESTLAKE: I think they get along amazingly well. It seems to me that the adults react most, and they impress the children.

DR. THOMPSON: That's another good point.

MR. WESTLAKE: And the way children will accept other children is very, very impressive.

DR. MERRIFIELD: I think that the parents of these children are usually very much more concerned. It is unusual for a parent to neglect such a child or to refuse such a child. It does happen, of course, but it is unusual, and these children are very often given more care in the family than would otherwise be the case.

Child's Attitude

MR. MACOMB: Dr. Merrifield, you have mentioned that perhaps these children are given more care. I would suppose that over-concern by parents would perhaps be as bad as too little concern.

DR. MERRIFIELD: That is very true, but when the child is a baby, I don't think that matters so very much. As the child grows older, he should be taken into the family as an individual; his deformity should not be stressed. As a matter of fact, I think it is much better to ignore it, and when the child is old enough to understand, he should be told that other people have deformities, that they have club feet and congenital hips, and so forth, and the child should be trained or tuned to an attitude of mind which says, "Yes, I have a cleft lip or a cleft palate."

MR. MACOMB: "So what?"

DR. MERRIFIELD: "What do you have?"

MR. MACOMB: That's right.

MR. WESTLAKE: When we speak of something being unfortunate, and speak of something being a calamity, do we mean the condition itself or what can or cannot be done about it? This is where we have a responsibility.

Dr. Merrifield, you are wearing glasses. Without those glasses you might be very unfortunate, and everyone might feel very sorry for you. You might withdraw, and you might be completely unadjusted. However, the very fact that we have learned how to refract lenses so that your visual problem means nothing to you, means that we say you are not unfortunate; no one feels sorry for you. We have a responsibility to develop a plan so that we can do relatively as much for these children.

DR. MERRIFIELD: I think it would be a very fine thing if we could destroy all the mirrors, so we couldn't see our faces. That's the point.

MR. McBURNEY: I have often thought of that, Dr. Merrifield, if I may say so. [Laughter]

Social Aspect

MR. MERRIFIELD: That divides the deformity from the deformities of eyes and other parts of the body that aren't seen.

MR. McBURNEY: I can understand the kind of loving care and affection that a mother would bestow on a child of this sort, but the fact remains we are not going to destroy all the mirrors, and we are going to be walking down the street and we are going to go to work in shops and factories and schools and everywhere else. Now, how do these cleft lip youngsters fare in the social world they have to face?

DR. MERRIFIELD: There is a great deal of difference between children. Some children tend to withdraw; the other type tends to be very aggressive and very often objectionable, because they have something to overcome.

A boy who goes to school with a cleft lip or some deformity which is visual is teased by his playmates. They are cruel, and very often a boy has to fight his way through school. Of course, that sometimes leads to the point where he decides "I'm not going to go through with it any more," and he leaves school and becomes a truant.

MR. McBURNEY: I think we begin to see the problems this condition presents. You remember I opened

this discussion with a reference to this picture of a baby with a cleft lip; it is a terrific deformity. In this same brochure, on the opposite page, is a picture of this same child—I take it he is a lad of about two years of age —and he appears to be (to my untutored eye) a perfectly normal youngster.

Now, can you normally make dramatic changes in the appearance of a person of the sort that is suggested by those two pictures?

Surgical Approach

DR. MERRIFIELD: Very definitely so, and the surgical approach, with ordinary good fortune and with skill and care, can be brought to such a point that these children can be made presentable, and their palates can be repaired so they can be trained to adequate speech.

MR. McBURNEY: When do you close that palate?

DR. MERRIFIELD: I would like to insert "lip and palate" there, because the two go together in probably 60 per cent of the cases.

The lip closure should be done as soon after birth as possible. There are two reasons for that. One is that it puts the child back into circulation, so to speak, and the mother can show that child, and be proud of it.

MR. MACOMB: It prevents the inferiority complex which might develop in early growth, it seems to me.

MR. McBURNEY: Why don't you close the palate at the same time?

DR. MERRIFIELD: The bones that make up the palate and the face grow slowly with the child, and we have found as a result of our research that the time taken for the palate to grow adequately occurs during the first five years. Between the fourth and the fifth year probably five-sixths of the development of the bones has taken place.

MR. MACOMB: It seems to me if you are speaking, say, of the five-year-old, the child has already learned to speak. Now, then, Dr. Merrifield, is it a question of re-educating that child to speak, in that you have not yet had that palate repaired as of that time?

DR. MERRIFIELD: May I answer that in this way? I don't think that any child who has a cleft palate repaired can go along without some speech training. I would enlarge that a little further and say that I think it might be applied to every one of us. I think all of us could profit by proper speech training.

MR. McBURNEY: Well, I'm prepared to accept that, Doctor!

MR. WESTLAKE: The procedure, you see, is to delay surgery. The child goes for quite a few more years without having a roof in his mouth, which is quite difficult for his eating and for his speaking.

We feel very strongly that the children should not just be left that way, but that dental appliances ought to be supplied so they do have a partition in these early years when they are learning to speak, so they can talk fairly well and can eat fairly well, up to the time they are operated on.

DR. MERRIFIELD: I think that is very true, and I think that is one of our research problems. I don't mean to infer that all palates should be kept for five years before they are closed. The timing varies with the opinions of different men. I can say that probably between the ages of two and four or five is the time that is thought most acceptable.

Problem of Occupation

DR. THOMPSON: Dr. McBurney, I'd like to go back to another problem that we discussed just a moment ago, because I think there is an important point to be made. It is on this matter of social adjustment of the individual.

Now, any person subjected to emotional stress—avoidance, teasing by playmates, overprotection by the family—will develop a restricted personality that does not approach his true potentiality. This will certainly, then, affect that individual's social and economic position, and it is an unfortunate waste of what might have been a well adjusted individual in society.

MR. MACOMB: I certainly agree with you there, Dr. Thompson.

As I am the layman here this morning, it occurs to me that anyone with a speech defect in such a place as a steel mill, for example, cannot well be understood over a telephone. Now, that is just basic. In the main picture I can also suppose that such a person whose face is not like that of all his fellow men, has, let us say, one or two strikes against him in his battle for survival.

MR. WESTLAKE: We think of this very largely as human engineering. In engineering you make an assessment, and you find out what the potentials are, what powers you can bring out of metal or any other type of resource. Human beings are the same way. Individuals can operate on a pretty good level or a pretty poor level, and we think these people have potential abilities, and that if they are not given attention, they are not as happy, they are disjointed in every way, and they aren't acting as citizens in the most constructive way.

I want to be very careful here, too, as we don't want to make a genius out of every cleft palate case. Every cleft palate case isn't a genius, but we need a strong citizen, a good engineer, an efficient machinist.

MR. McBURNEY: Of course, they have as much chance of becoming a genius as anybody else.

DR. THOMPSON: Yes.

Bright Children

DR. MERRIFIELD: Apropos of that, Dr. McBurney, it has been our experience that children with these deformities—provided that otherwise they are normal—are usually bright.

DR. THOMPSON: That's correct.

DR. MERRIFIELD: It's an amazing thing, but that has been our experience. They are smarter. They are more alert than other children.

MR. McBURNEY: You gentlemen started out talking about babies, and a few minutes ago you were talking about men working in the steel mills. Let me ask you this question: What is the oldest palate you have ever closed, Doctor?

DR. MERRIFIELD: I have closed palates in patients of 30 years of age, and one of 35 years of age. I have heard of a palate being closed at the age of 70. Now, I don't know that that is any more than a coincidence.

MR. WESTLAKE: We are talking a great deal about surgery, and we think it is a very important part of our approach, but isn't it also true, Dr. Merrifield, that we find some of these cases aren't going to get their best adjustment that way? They might not have enough tissue for a successful operation. With some of these cases dental appliances or speech bulbs are going to be used, and they are the best things for those purposes.

MR. McBURNEY: What is a speech bulb?

MR. MACOMB: I never heard of that.

MR. WESTLAKE: We talk about the whole roof of the mouth. The front part is the hard palate, the back part is the soft palate, and the soft palate closes off the area between the nose and the mouth; it is a muscular tissue, so it can move, and it closes off the nasal cavity from the mouth. Now, supposing you don't have the tissue. Supposing you don't have something you can make into a soft palate there. You can project a dental appliance so you have a round bulb that goes back into the throat, and you can train these adults and children to grip that bulb with the muscles of the throat so that they can close off the nose from the mouth.

DR. THOMPSON: That is an artificial replacement of the soft palate, isn't it?

MR. WESTLAKE: Yes.

MR. McBURNEY: Is that the kind of work that you are concerned with, Dr. Thompson?

Dental Appliances

DR. THOMPSON: Yes. The construction of these appliances would fall within the realm of dentistry. And I might point out, too, that dentistry is also concerned, first of all, in maintaining the health of the mouths of

these children. Teeth seem to decay more rapidly in the children with the cleft palate than in the average child.

MR. MACOMB: I wanted to ask you that very question, Dr. Thompson—what the effect was—because I don't think we have yet mentioned teeth. I assume they may come in improperly in the mouths of such children.

DR. THOMPSON: In controlling tooth decay, the child should be seen at least at four-month intervals by the dentist, so that he can restore the teeth and also apply the most modern methods of prevention of tooth decay.

MR. MACOMB: That sounds like some more money to be spent.

DR. THOMPSON: Indeed it is.

Secondly, the teeth will quite likely be irregular, and the extent of the irregularity depends on the extent of the original deformity, so these children will require a considerable amount of straightening of the teeth during their growing period.

Finally, we have that phase of dentistry that is concerned with making the speech appliance referred to by Dr. Westlake, which is an artificial replacement for the roof of the mouth and for the soft palate which is missing.

MR. McBURNEY: We have three medical specialists around the table here today. Thompson, what kind of professional services do you need in these cases, anyway?

Complex Treatment

DR. THOMPSON: It is rather a complex problem because of its nature; therefore, in the proper treatment of these children, it requires a complex treatment program. In other words, the specialties involved are, of course, surgery, speech, hearing, and then the specialists involved in maintaining the health of the nose and the ears and throat, the specialist in dentistry concerned with straightening the teeth, the specialist in dentistry concerned with filling of the teeth, the specialist in dentistry concerned with making the speech appliances, and of course we must not forget the general health of the individual, as the pediatrician is an important part of a group approach to this problem.

MR. McBURNEY: How do you get all these people together?

MR. MACOMB: This sounds like a team to me, as if each of these men has a job to do and does it in a prescribed sequence.

DR. THOMPSON: You are right. This team approach is relatively new in the treatment of the cleft palate problem, but there are very effective teams located throughout the country. While we are a team at Northwestern University, we are certainly not the first one.

MR. MACOMB: Who is the boss of your team, for example?

DR. THOMPSON: We have about seven or eight bosses. In other words, the team works successfully when every individual participating respects the other man's viewpoint, and takes it into account.

DR. MERRIFIELD: This is essentially a project which necessitates the real interest of everybody participating in this team approach.

Interaction

MR. WESTLAKE: Doesn't this team approach require considerable interaction?

Now, Dr. Merrifield, you could have some surgery that would be fine from your point of view, but it might not be quite right for speech, and likewise, you can put in an appliance some times that looks well but might get in the way of the tongue. We have to work together. That is what I mean by interaction.

DR. MERRIFIELD: Well, 20 or 25 years ago, when I first got interested in these deformities, the surgeon was called in when a baby was born with a cleft lip or cleft palate. After the surgery was completed, the parents were told, "Now, your child will need speech training. You have to see a dentist and have him take care of the decay, and later perhaps you will need an orthodontist to straighten the teeth."

With this team approach, surgery, while very important in order to get a good start on the case, falls into

the background a bit when we consider the multitude of other specialties that come into this picture.

MR. WESTLAKE: Mention has been made of the fact that we have a team. This is a lot of service, and we cannot neglect the problem of expense. I would like to say one thing with regard to expense, that I think we can say honestly that in a cleft palate case, of all the areas of rehabilitation, a relatively small investment will bring you a more certain result, a real return on a relatively small outlay. From a financial point of view, this is a good investment.

Mr. Macomb, you are in private industry. Do you think such a program as this ought to be supported?

MR. MACOMB: Clearly, gentlemen, as I attempt to represent the business man here, I think we need more funds. That probably goes without saying, if we want to spread the gospel and the kind of services you have been describing. To get money to do this—and it obviously does cost money—there are only two proper sources, it seems to me. One is such contributions as corporate business could give. And I remind you, parenthetically, that the tax situation allows you, I think, up to 5 per cent—federal taxes—deductible for gifts, 5 per cent of the net earnings, and I also believe that only about 1 per cent of the 5 per cent possibility is being taken advantage of by industry in the United States.

Stake of Industry

MR. McBURNEY: What is the stake of industry in this kind of a problem?

MR. MACOMB: I would say the salvaging of humans! In this country we are particularly proud of our engineering ability with machines, but we don't spend very much time on the engineering of humans and the salvaging or rehabilitation of men who could be, for all we know, the President of the United States.

DR. MERRIFIELD: Don't you think that it would be a fine thing if, in your organization—not yours alone, but other organizations, too—the employees who were unfortunate enough to have a baby born into the family with such a deformity could feel that they had a place to go, perhaps to your medical department, where they could get advice and encouragement and enlightenment on the subject?

MR. MACOMB: Certainly the peace of mind of a workman who knew that his child was being properly cared for in this connection would be mighty important to us from a safety standpoint and from a productivity standpoint.

DR. THOMPSON: Mr. Macomb, don't you think that corporations would be interested in knowing that our kind of program goes far beyond treatment? We, as a part of a national university, are interested in promoting research so better treatment can be brought about in the future. We are further interested in training students so they, in turn, can go back to their individual communities to give these children better treatment.

MR. McBURNEY: You assume a need for that type of personnel and that type of research. Is he justified in that assumption, Westlake?

MR. WESTLAKE: Very definitely he is justified in it. It is encouraging to see how this thing is growing throughout the country, but as yet the supply in teams of personnel and facilities just can't begin to meet the demand.

MR. McBURNEY: Now let me ask one question that is important to me. Let's say there is a youngster from a poor family who can't pay for all these elaborate facilities. What is he going to do?

DR. THOMPSON: He will get the same treatment as if he had a million dollars.

DR. MERRIFIELD: He is going to get the same treatment, as Dr. Thompson said. We have organized our Cleft Palate Institute with funds that were donated by the Clara Abbott Foundation, through the interest of Mr. Alfred W. Bays. We hope and believe . . .

ANNOUNCER: I'm sorry, gentlemen, but our time is up.

Suggested Reading

Compiled by William Huff, and M. Helen Perkins, Reference Department, Deering Library, Northwestern University.

DORRANCE, GEORGE M. *The Operative Story of Cleft Palate.* Saunders, Philadelphia, 1933.

A technical book written for the medical profession containing extensive photographs and a lengthy bibliography.

Illinois Handicapped Children Commission. *Has Your Child a Cleft Palate?* Springfield, The Commission, 1949. Rev. Ed.

Written for the layman, this is "the story of the cleft palate — of how children who have this condition may be helped medically and educationally."

Child 15:141-3, Apr., '51. "To Restore the Child with Cleft Palate." S. M. WISHIK.

A paper given at the seventh annual meeting of the American Association for Cleft Palate Rehabilitation pointing out that the family, community and professional must cooperate to aid the child with a cleft palate.

Crippled Child 28:22-23, 29, 1950. "The Cleft Palate Child Is Crippled." C. S. HARKINS and M. M. NITSCHE.

Photographs and descriptions of various cleft palate cases with a brief discussion of basic factors in prosthetics and oral surgery.

Dental Record 69:55-6, 1951. "Late Orthodontic Treatment in a Case of Cleft Palate." W. J. TULLEY.

A brief comparative description of orthodontic procedures followed in the case of a twenty-three-year-old patient.

Hygeia 27:186-7, Mr., '49. "Our Child Had a Cleft Palate." L. H. DALRYMPLE.

The experience of parents whose child was born with a cleft palate and underwent a successful operation.

Hygeia 24:834-5, Nov., '46. "Cleft Palate Children." O. E. BEDER.

A brief description of the cleft palate and methods which may be used to correct this condition.

Journal of the American Dental Association 43:29-33, 1951. "The Role of the Prosthodontist in the Rehabilitation of Cleft Palate Patients." C. S. HARKINS.

The use of corrective appliances in the cleft palate problem.

Journal of the Exceptional Child 16:65-72, 96, 1949. "Rehabilitation of the Cleft Palate Person." C. S. HARKINS.

An outline of the problems faced in rehabilitating one individual with a cleft palate. Includes consideration of oral and nasal structures, cause and prevalence of deformity and speech problems; illustrated.

Journal of Prosthetic Dentistry 1:629-637, 1951. "Speech Considerations in Cleft Palate Prosthesis." EUGENE T. McDONALD.

A simple approach to the cleft palate problem for the layman.

Journal of Rehabilitation 13:23-26, 1947. "Cleft Palate Rehabilitating by Prosthesis." C. S. HARKINS.

Conscientious undertaking of restorative measures can vastly decrease limitations produced by cleft palate.

Journal of Speech Disorders 11:309-20, Dec., '46. "Testing and Correcting Cleft Palate Speech." M. W. MASLAND.

Once the cleft palate has been closed, special attention must be given by the speech therapist to speech reeducation.

Journal of Speech and Hearing Disorders 16:9-20, Mr., '51. "Cleft Palate Speech." E. T. McDONALD and OTHERS.

A summary of the problems faced by cleft palate individuals regarding hypernasality, nasal emission and misarticulation with statements and points of view by men in the field.

Journal of Speech and Hearing Disorders 14:43-52, Mr., '49. "Organized Therapy for Cleft Palate Rehabilitation." M. W. BUCK and R. HARRINGTON.

Exercises compiled and organized for individuals with cleft palate to practice. Gives directions concerning their practice and the reason such practice is necessary.

Journal of Speech and Hearing Disorders 13:211-222, Sept., '48. "Diagnosis and Prognosis in Cleft Palate Speech." C. E. KANTNER.

A discussion of problems involved in the examination and diagnosis of a cleft palate speech case and the procedure to follow.

Journal of Speech and Hearing Disorders 13:23-30, Mar., '48. "Twenty-five Years of Cleft Palate Prosthesis."

An examination and evaluation of the major problems relating to the prosthetic method and its application in the restitution of the cleft palate person.

Quarterly Journal of Speech 31:68-73, Feb., '45. "Speech Training Center for Cleft Palate Children." C. G. WELLS.

Speech training centers such as those provided by Wisconsin present activities and exercises under the direction of speech therapists which are great aid for cleft palate children.

Saturday Evening Post 224:28-29, Oct. 6, '51. "They're Not Afraid to Look in Mirrors Now." S. M. SPENCER.

The Lancaster Cleft Palate Clinic has done great work in correcting and rehabilitating cleft palate patients.

South African Medical Journal 23:473-75, 1949. "Cleft Palate and Speech Therapy." C. A. R. SCHULENBERG.

A brief summary regarding the routine managing of a cleft palate patient from the discovery by the physician until the speech is restored by a speech therapist.

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